

**IN THE UNITED STATES DISTRICT COURT  
FOR THE NORTHERN DISTRICT OF ILLINOIS  
EASTERN DIVISION**

HUNTAIR, INC.,	)	
	)	
Plaintiff,	)	
	)	
v.	)	
	)	Civil Action No. 07 C 6890
CLIMATECRAFT, INC.,	)	
	)	
Defendant.	)	
<hr style="width: 35%; margin-left: 0;"/>	)	The Honorable David H. Coar
	)	
CLIMATECRAFT, INC.,	)	
	)	
Counterclaim Plaintiff,	)	
	)	Magistrate Judge Morton Denlow
v.	)	
	)	
HUNTAIR, INC.,	)	
	)	
Counterclaim Defendant.	)	

**CLIMATECRAFT, INC.'S OPENING BRIEF ON CLAIM CONSTRUCTION**

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## I. INTRODUCTION

This Court should enter judgment of invalidity against Huntair *right now*. The claims of the patents in suit cannot be construed because they are insolubly ambiguous for two, separate reasons and are therefore invalid under 35 U.S.C. § 112 ¶ 2. Alternatively, should the Court determine the claim terms are amenable to construction, it should construe them to clearly articulate that “control” of the fan units to run at “substantially peak efficiency” requires automatic operation of individual fan units to run some of them differently from the operation of the remaining fan units in the fan array.

U.S. Patent No. 7,137,775 (“the ‘775 Patent”) (Exh. 1) and U.S. Patent No. 7,179,046 (“the ‘046 Patent”) (Exh. 2) (collectively, the “patents in suit” or “the Huntair patents”) show a group of fans working together to move air in an “air handling unit,” typically associated with commercial heating-ventilation-air-conditioning (“HVAC”) systems. The patents’ specifications<sup>1</sup> are directed to two principal embodiments: one showing “fan units” arranged in an “array,” and the other explaining that a “peak efficiency embodiment” can be implemented where the individual fan units in the array are controlled to run at substantially peak efficiency by turning selective ones of said fan units on and off.

Huntair originally sought claims to both types of embodiments, but the PTO rejected those claims not requiring “control” for “substantially peak efficiency” over prior art<sup>2</sup>. Huntair amended its application to drop these claims. Consequently, all of the claims in the patents in suit require some kind of “control” for “substantially peak efficiency.”

The heart of the case is the “control.” Huntair obtained claim coverage of systems that “control” fan units to run at “substantially peak efficiency,” yet, as will be shown, *the patents in suit teach absolutely nothing about how to do this* other than to say that the individual fan units can be switched on and off. ClimateCraft presents uncontroverted evidence that controlling the fans in a fan array to “run at substantially peak efficiency” is extremely difficult, if not

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<sup>1</sup> The patents in suit have identical specifications (including the drawings); only their claims differ. Consequently, ClimateCraft will refer to and cite from the specification of the ‘046 Patent (Exh. 2). Parallel citations to the ‘775 Patent (Exh. 1) will not be given and, in any event, would differ only by a line or two from those of the ‘046 Patent.

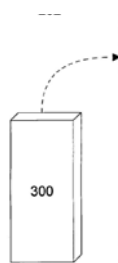
<sup>2</sup> Huntair admitted that the prior art cited by the PTO showed multiple fan units arranged in an array and having (a) speed control capable of speeding or slowing all the fan units at once and (b) the ability to manually take one or more fan units in the array off-line, e.g., for maintenance.

impossible, and that the patents in suit teach nothing about *how and when* to either (a) switch individual fan units on and off or (b) vary the speed of individual fan units relative to the others so that (c) the remaining fan units run at “substantially peak efficiency.”

“Whether the claims meet the statutory requirements of § 112 ¶ 2 is a matter of construction of the claims.” *S3, Inc. v. Nvidia Corp.*, 259 F.3d 1364, 1367 (Fed. Cir. 2001). Thus, whether the patents in suit comply with the statutory requirements of 35 U.S.C. § 112 ¶ 2 is a question of law for the Court. *Personalized Media Communications, L.L.C. v. Int’l Trade Comm’n*, 161 F.3d 696, 702 (Fed. Cir. 1998). The claims are indefinite for two reasons.

First, each patent claim is indefinite because each requires control to run at “substantially peak efficiency.” The specification provides no guidance as to what “substantially” means. Huntair contends that “substantially peak efficiency” means “nearly peak efficiency,” but offers no evidence as to how one would know how “near” is “near enough” to be covered by the claims of the patent. The law forbids such a “zone of uncertainty.”

Second, each patent claim is indefinite because each independent claim contains a limitation that should be construed as “means-plus-function,” and no structure is described in the specification that performs the claimed function. In *Aristocrat Technologies Austl. v. Int’l Gaming Tech.*, 521 F.3d 1328, 1338 (Fed. Cir. 2008), the Federal Circuit affirmed invalidity because the specification did not provide “structure” to perform a computer-implemented function found in a means-plus-function claim element. Computer-implemented means-plus-function claims must disclose some kind of *logic or algorithm* to accomplish the claimed function, said the Court:



For a patentee to claim a means for performing a particular function and then to disclose only a general purpose computer as the structure designed to perform that function amounts to pure functional claiming.

*Id.* at 1333. Here, the claims are directed to allegedly novel “control” of fan units to run at “substantially peak efficiency” by either turning them on and off or by varying their relative speed. Nothing more is disclosed as to how to do this other than to use a controller 300, as shown on the left. This is functional claiming: it is as if the only thing Huntair said was, “do it.”

In the event the Court does not enter judgment of invalidity at this time, the Court should adopt ClimateCraft’s proposed jury instructions (Exh. 5). These focus the jury on the requirement that each independent claim requires independent, automatic “control” of the fan

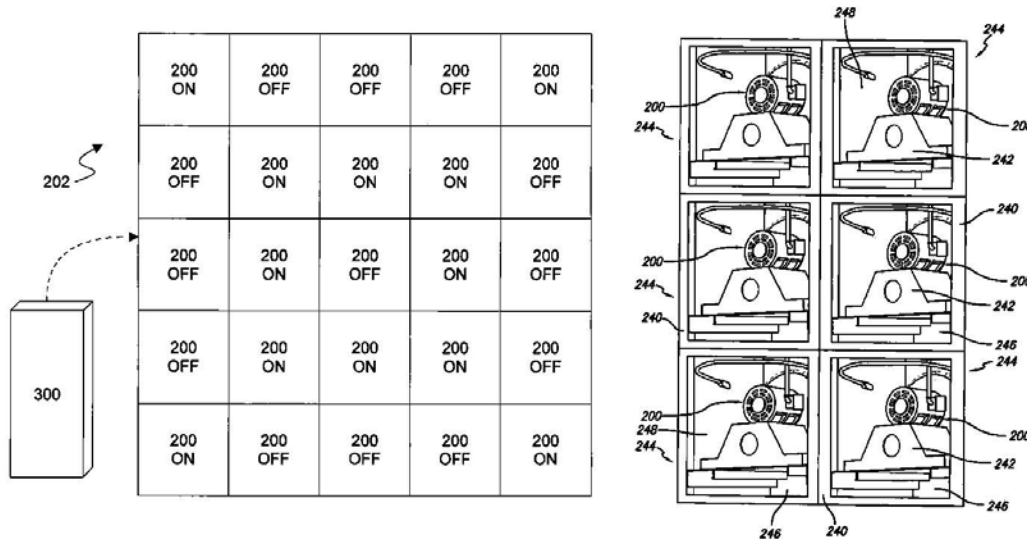


units – i.e. “turning individual fans on and off” or “speeding or slowing individual fan units relative to the others” while running the other fan units in the fan array at “substantially peak efficiency.” Huntair’s proposed constructions (*cf.* Exh. 6) obfuscate these requirements.

## II. THE SUBJECT MATTER DISCLOSED IN THE PATENTS IN SUIT

The patents in suit disclose two principal embodiments, illustrated on the cover page of the patents and described in the Abstract (Exh. 1, 2 at page 1):

A fan array fan section in an air-handling system includes a plurality of fan units arranged in a fan array and positioned within an air-handling compartment. One preferred embodiment may include an array controller programmed to operate the plurality of fan units at peak efficiency.



On the right, the fan array configuration is illustrated, in which individual fan units are arranged in an “array” to work together to move air. On the left, the “peak efficiency embodiment” is illustrated, in which the individual fan units are “selectively turned on and off” to control for peak efficiency. As explained below, these patents say little more about *how* to control for peak efficiency than is illustrated above.

### A. The First Embodiment – Fan Array Only

The Huntair patents are directed to an air handler fan section comprising a plurality of fans arranged in a “fan array.” The patents define “air handling system” as a system for conditioning air as part of the primary ventilation system for a structure, such as a building or room. Exh. 2, Col. 1, lines 25-30<sup>3</sup>.

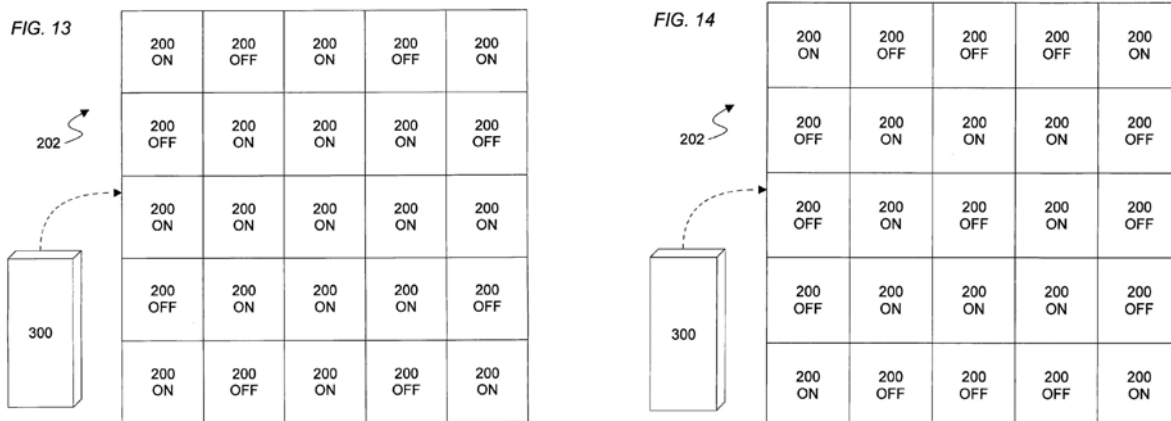
<sup>3</sup> For brevity, citations to a patent’s column and line numbers will be written as, *e.g.*, 1:25-30.

The patents tout a number of alleged advantages<sup>4</sup> to using multiple, smaller fans in place of a single, larger fan. These include the ability to closely space the fan units, 5:27-37; less weight to the assembly by using multiple, smaller fans, 5:38-48; the ability to vertically stack and thereby save horizontal room, 6:1-5; the ability to use a variable frequency drive (VFD) to run all the fans at the same speed or power level, 6:28-30; the ability to use smaller electrical components, e.g. a 30 horsepower array controller for use with fourteen 2-horsepower fans in place of a 50 horsepower controller connected to a 50-horsepower fan, 6:41-51; smaller overall dimensions to the array than a single, larger fan, 7:56-8:51; reduced production costs, 8:54-9:19; redundancy, or the ability to service a single fan unit without shutting down the entire air handling system, 9:40-49; sound attenuation, 9:49-60; and reduced vibration, 9:61-10:5 (Exh. 2).

The patent also explains that the “array” can take many forms, showing examples in Figs. 3-18 and calling particular attention to Figs. 9-12 (alternative array sections) and Figs. 16-18 (alternative embodiments). “As the present invention could be implemented with true arrays and/or alternative arrays, the term “array” is meant to be comprehensive.” 5:15-26. “It should be noted that the array may be of any size or dimension of more than two fan units 200.” 11:36-38.

### B. The Second Embodiment – The “Peak Efficiency Embodiment”

The Huntair patents describe a preferred embodiment called the “peak efficiency embodiment” (6:25, 6:64), in which the fan section comprises an array controller programmed to



<sup>4</sup> ClimateCraft does not agree that all of these alleged advantages are real, but these are the alleged advantages Huntair attributed to the use of smaller fans working together.

operate the fan units at peak efficiency, and a controller turns some of the fan units in the fan array on or off so that the remaining fans run at peak efficiency. The ability to turn fans on and off is illustrated by Figs. 13 and 14 (the controller is shown as 300).

There are multiple references in the specification to control for peak efficiency, but they all say the same thing: turn fans on and off and you'll somehow control for peak efficiency:

Citation	Representative Quote
Abstract, 2 <sup>nd</sup> sentence	“One preferred embodiment may include an array controller programmed to operate the plurality of fan units at peak efficiency.”
3:58-60	“One preferred embodiment may include an array controller programmed to operate the plurality of fan units at peak efficiency.”
6:22-28	“In one preferred embodiment, the array controller 300 may be programmed to operate the fan units 200 at peak efficiency. In this peak efficiency embodiment, rather than running all of the fan units 200 at a reduced efficiency, the array controller 300 turns off certain fan units 200 and runs the remaining fan units 200 at peak efficiency.”
6:60-7:3	“As mentioned, preferably each of the fan units 200 in the fan array fan section in the air-handling system is controlled by an array controller 300 (FIGS. 13 and 14) that may be programmed to operate the fan units 200 at peak efficiency. In this peak efficiency embodiment, rather than running all of the fan units 200 at a reduced efficiency, the array controller 300 is able to turn off certain fan units 200 and run the remaining fan units 200 at peak efficiency. Preferably, the array controller 300 is able to control fan units 200 individually, in predetermined groupings, and/or as a group as a whole.”
9:30-38	“The fan array fan section in the air-handling system of the present invention preferably is more efficient than prior art air-handling systems because each small fan unit 200 can run at peak efficiency. The system could turn individual fan units 200 on and off to prevent inefficient use of particular fan units 200. It should be noted that an array controller 300 could be used to control the fan units 200. As set forth above, the array controller 300 turns off certain fan units 200 and runs the remaining fan units 200 at peak efficiency.”

Nowhere does the specification explain when or why to turn fans off. Moreover, the specification and the originally submitted claims say nothing about varying the speed of the fan units to control for peak efficiency.

### III. THE PROSECUTION HISTORY OF THE PATENTS IN SUIT

#### A. The Application Leading to the ‘775 Patent

##### 1. The Original Patent Application Presented Claims to Each Embodiment

The original patent application (Exh. 25)<sup>5</sup> from which the ‘775 Patent issued contained 20 claims, two of which were independent claims. Exh. 25, CL 55-58. The first of two independent claims, then-pending claim 1, required control of the fan units to run at substantially peak efficiency. The other independent claim, then-pending claim 11, did not contain this limitation, but instead read (Exh. 25, CL 56):

11. A fan array fan section in an air-handling system comprising:
  - (a) an air-handling compartment;
  - (b) a plurality of fan units;
  - (c) said plurality of fan units arranged in a fan array;
  - (d) said fan array having at least one fan unit arranged vertically on at least one other fan unit; and
  - (e) said fan array positioned within said air-handling compartment.

Huntair thus tried to claim any fan array in an air-handling system in which one fan unit was stacked on top of another. Exh. 25, CL 56. Huntair was unsuccessful in that effort.

##### 2. To Distinguish its Claims from the Prior Art, Huntair Disclaimed Coverage of (a) Manual Switching On and Off of Fan Units and (b) Varying the Speed of All the Fan Units in the Array Uniformly

The U.S. Patent and Trademark Office (“PTO”) issued its first Office Action on the merits (Exh. 26), rejecting all of the pending claims under 35 U.S.C. § 102(b) in view of U.S. Patent No. 4,767,262, issued to Simon (Exh. 27). The Examiner argued that Simon shows fans in an array and discloses an “array controller 8 for controlling the [fans] to run at substantially peak efficiency.” Exh. 26, CL 124. Simon shows a single control block 8 from which the speed of all the fans can be varied identically. Exh. 26, 3:27-44. The fan units in Simon can be taken out, without shutting down the entire array, Exh. 26, 3:21-23, to adjust the system.

Huntair admitted these facts, distinguishing the claimed “array controller” from Simon. In an amendment dated March 14, 2005 (Exh. 28), Huntair distinguished the controller claimed in then-pending claims 1 and 12 from Simon’s teachings, explaining Simon “teaches two ways to control the fans. First, the user can manually control the number of fans by inserting and

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<sup>5</sup> Pages from the priority documents, cited prior art and prosecution history (Exh. 22-37) bear Bates Nos. from ClimateCraft’s production (*e.g.* CL 34-74); these numbers will be used to cite to individual pages.

connecting the desired number of fans” so that no air is supplied by a fan “by manually removing or disconnecting the fan.” “Second, an electric control block can supply a control voltage to the number of fans provided in the fan slide in unit to control the speed of the fans” so that “all the fans are controlled by a single voltage, that can be varied, but it runs all the fans at the same speed.” Exh. 28, CL 145. At that time, then-pending Claim 1 recited “an array controller for controlling said at least six fan units to run at substantially peak efficiency by strategically turning selective ones of said at least six fan units on and off.” *Id.*, CL 136. Claim 12 recited “an array controller programmed to operate said plurality of fan units at peak efficiency by strategically turning on and off selective ones of said plurality of fan units.” *Id.*, CL 138.

Thus conceding that Simon provided a single speed-control of all fans at once and also provided the ability to manually take fans on or off line, Huntair said:

[Simon does] not appear to teach or suggest any means by which a controller can operate said plurality of fan units at peak efficiency by strategically turning on and off selective ones of said plurality of fan units.

Exh. 28, CL 145-146.

### **3. Due to Rejections by the PTO in View of Prior Art Showing the Fan Array Configuration, Huntair Canceled all Claims that did not Require Peak Efficiency Control**

While Huntair did not at first give up its efforts to obtain claims that did not require control for substantially peak efficiency, *supra.*, Huntair eventually gave up. Huntair filed an Amendment dated June 14 (Exh. 29, CL 187, 189-196) and canceled then-pending claims 11-20, 22, 24, 26, 28 and 30. Huntair presented new independent Claim 32 requiring control for peak efficiency, and dependent claims 33-47 which all depended on 32. At this point, no claim remains in the application that does not require control for peak efficiency<sup>6</sup>. Consequently, each of the claims of the ‘775 Patent requires control for substantially peak efficiency.

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<sup>6</sup> Each of these cancelled claims was presented one day later in the newly filed ‘046 application, corresponding respectively to the new claims 1-15 in that application. See Exh. 30, CL 429-431. These are discussed, *infra*.

## **B. The Application Leading to the ‘046 Patent**

### **1. The Original Patent Application Presented Claims to Each Embodiment**

One day after dropping all claims not requiring control for substantially peak efficiency from the ‘775 application, Huntair filed the patent application that led to the ‘046 Patent. Exh. 30, CL 403-458. Claims 1-15, as newly filed, are exactly the same as the claims 11-20, 22, 24, 26, 28 and 30 that were canceled from the ‘775 patent. New claims 16-20 were presented. Claims 1 and 16 were independent claims; all of the remaining claims depended from Claim 1:

1. A fan array fan section in an air-handling system comprising:
  - (a) an air-handling compartment;
  - (b) a plurality of fan units;
  - (c) said plurality of fan units arranged in a fan array;
  - (d) said fan array having at least one fan unit arranged vertically on at least one other fan unit;
  - (e) said fan array positioned within said air-handling compartment;
 and
  - (f) said air-handling compartment positionable within a structure such that said air-handling system conditions the air of said structure.

As filed, then-pending claims 1, 3-11, 14 and 16 did not require control for peak efficiency. Claims 2, 12-13, 15 and 17-20 did require control for peak efficiency.

Interestingly, claims 15 and 20 were identical. This should have drawn an objection from the Patent Examiner, but it did not. Claims 15 and 20 also require control for peak efficiency by selectively controlling the speed of “each of said plurality of fan units”:

15 [20]. The fan array fan section in an air-handling system of claim 1, further comprising an array controller for controlling said plurality of fan units, said array controller is programmed to selectively *control the speed of each of said plurality of fan units* to run at substantially peak efficiency.

Exh. 30, CL 432, 433 (emphasis added).

Note that the placement of the word “each” is confusing: “each” appears to modify “plurality” rather than “fan unit.” Huntair corrected this problem later, by removing the phrase “each of” (see subparagraph 3 hereof, *infra*.).

**2. Due to Rejections by the PTO in View of Prior Art Showing the Fan Array Configuration, Huntair Canceled all Claims that did not Require Peak Efficiency Control**

In an Office Action dated March 8, 2006 (Exh. 31), the PTO rejected claims 1, 12 and 16 of this application as claiming the same invention of claims 5, 1 and 31 of '775 application. This "double patenting" rejection was easily overcome by a terminal disclaimer. But then the PTO rejected multiple claims as anticipated, applying three separate references in three separate grounds of rejection, separately over Ray, U.S. Patent No. 5,701,750 (Exh. 32), Niedhardt, U.S. Patent No. 4,021,213 (Exh. 33) and Krofchak, U.S. Patent No. 5,370,576 (Exh. 34).

In an Amendment dated September 8, 2006 (Exh. 35), Huntair added to then-pending claim 1 the limitation "a control system for controlling" for peak efficiency, thus adding the limitation of then-pending claim 2 to claim 1. (Exh. 35, CL 517). This removed from the application any claim that did not require some kind of peak efficiency control. Consequently, each of the claims of the '046 Patent requires control for substantially peak efficiency.

**3. To Distinguish its Claims from the Prior Art, Huntair Amended its Claims to Varying Fan Speed Control for Peak Efficiency as Requiring Independent Control of Each Fan Unit's Speed**

In addition to restricting the scope of the claim to requiring some peak efficiency control, Huntair also amended then-pending Claim 15 to require separate speed control of the individual fan units in the array. The control element in original claim 15 was amended as follows:

- (f) ~~an array controller~~ a control system for controlling said plurality of fan units, said ~~array controller is programmed to selectively control~~ control system allowing control of the speed of ~~each of the fan units in~~ said plurality of fan units ~~to~~ such that they run at substantially peak efficiency.

Huntair explained how the newly-added language distinguished then-pending claim 15 over Ray (Exh. 35, CL 522-523):

Claim 15 has been amended in substantially the same manner as claim 1 except that *the control system controls the speed of individual fans*, rather than turning individual fans off, to cause the plurality of fans to run at substantially peak efficiency.

Huntair also distinguished newly amended, then-pending claim 15 over Niedhardt, explaining:

The Applicants have carefully reviewed Fig. 4 and the accompanying description in Neidhardt et al. (col. 3, line 8 to col. 5, line 31) and can find absolutely no teaching or suggestion of an "array controller being programmed *to selectively*



*control the speed of each of said plurality of fan units to run at substantially peak efficiency.”*

(Exh. 35, CL 523).

Notice that the poorly placed words “each of” were removed during the amendment of claim 15. From the comments provided, it is clear this was done to remove the confusion that had existed because the word “each” appeared to modify “plurality” rather than “fan unit.” Huntair’s arguments and amendments make it clear that the claim requires that the speed of each of the fan units could be varied relative to the speed of the remaining fan units.

#### **IV. GOVERNING LEGAL STANDARDS REGARDING CLAIM CONSTRUCTION**

##### **A. Claim Construction**

Claims of a patent define the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc). “The construction of claims is simply a way of elaborating the normally terse claim language in order to understand and explain, but not to change, the scope of the claims.” *Terlep v. Brinkmann Corp.*, 418 F.3d 1379, 1382 (Fed. Cir. 2005) quoting *Embrex, Inc. v. Serv. Eng’g Corp.*, 216 F.3d 1343, 1347 (Fed. Cir. 2000). Proper claim construction requires examining the words of the claims themselves, the patent specification and the prosecution history of the patent.

“[T]he claims themselves provide substantial guidance as to the meaning of particular claim terms.” *Phillips*, 415 F.3d at 1314. “To begin with, the context in which a term is used in the asserted claim can be highly instructive.” *Id.*

The claims are part of a “fully integrated written instrument” consisting principally of a specification that concludes with the claims. *Phillips*, 415 F.3d at 1315 (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 978 (Fed. Cir. 1995) (en banc), *aff’d*, 517 U.S. 370 (1996)). For that reason, the claims “must be read in view of the specification, of which they are a part.” *Id.* (quoting *Markman*, 52 F.3d at 979). “[T]he specification ‘is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.’” *Id.* (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)).

In addition to the specification, the patent’s prosecution history should be considered in the claim construction analysis. *Phillips*, 415 F.3d at 1317. “The prosecution history. . . consists of the complete record of the proceedings before the PTO and includes the prior art cited during



the examination of the patent.” *Id.* The prosecution history often contains evidence of how the patent office and the inventor understood the patent and its claims. *Id.* “[T]he prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be.” *Id.* (citations omitted).

## **B. “Means-Plus-Function” Limitations**

“An element in a claim for a combination may be expressed as a means. . . for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.” 35 U.S.C. § 112 ¶ 6 (2006). Such a limitation is commonly referred to as a “means-for” limitation or a “means-plus-function” limitation. Thus, in return for generic claiming ability, the applicant must indicate in the specification what structure constitutes the means.

When a claim uses the term “means” to describe a limitation, a presumption inheres that the inventor used the term to invoke 35 U.S.C. § 112 ¶ 6. *Altiris, Inc. v. Symantec Corp.*, 318 F.3d 1363, 1375 (Fed. Cir. 2003). Conversely, if the word “means” is not used, a presumption exists that the limitation does *not* fall under 35 U.S.C. § 112 ¶ 6. *See Mass. Inst. of Tech. v. Abacus Software*, 462 F.3d 1344, 1353 (Fed. Cir. 2006).

However, these presumptions are rebuttable. Purely functional limitations recited in a claim may overcome the presumption and may be deemed to indicate the existence of a means-for limitation even though the actual word “means” is not present in the claim limitation. *See Id.* This can occur when such a limitation fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function. *See Id.* In *Apex, Inc. v. Raritan Computer, Inc.*, 325 F.3d 1364, 1372 (Fed. Cir. 2003), the Federal Circuit stated that the presumption is rebutted where the party challenging it proves by a preponderance of the evidence that the claim terms “recites a ‘function without reciting *sufficient structure for performing that function*’” (emphasis added, internal citations omitted).

To be considered a structural element wherein § 112 ¶ 6 does not apply, the term must have a reasonably well-understood meaning in the art. *Id.* Where the term is not shown to have a “generally understood structural meaning in the art” and is “described in terms of its function

not its mechanical structure,” then § 112 ¶ 6 applies. *Mas-Hamilton Group v. LaGard, Inc.*, 156 F.3d 1206, 1213-1214 (Fed. Cir. 1998) (holding § 112 ¶ 6 applies to “lever moving element” and “movable link member”). In *Mas-Hamilton*, the Federal Circuit applied § 112 ¶ 6 to a “movable link member for holding the lever out of engagement with the cam surface before entry of a combination and for releasing the lever after entry of the combination,” concerned that functional terminology may not be construed to any device performing the function but must instead be construed to specific structure. As stated in *Mas-Hamilton*:

If we accepted LaGard’s argument that we should not apply section 112, P 6, a “moving element” could be any device that can cause the lever to move. LaGard’s claim, however, cannot be construed so broadly to cover every conceivable way or means to perform the function of moving a lever, and there is no structure recited in the limitation that would save it from application of section 112, P 6.

*Id.* at 1214.

In *Toro Co. v. Deere & Co.*, 355 F.3d 1313, 1325 (Fed. Cir. 2004), the Federal Circuit reversed a holding that a “control mechanism for controlling the operation” of a valve was not a means-plus-function claim limitation. The clause “discloses a function for a ‘control mechanism’ but does not provide sufficient structural description of this mechanism.” *Id.*

Should the Court determine that a claim limitation is to be construed under 35 U.S.C. § 112 ¶ 6, the claim construction analysis has two steps: (1) the function stated in the limitation is identified; and (2) the corresponding structure in the specification is identified for that function. *Med. Instrumentation & Diagnostics Corp. v. Elekta AB*, 344 F.3d 1205, 1210 (Fed. Cir. 2003).

If there is no structure in the specification corresponding to the means-plus-function limitation in the claims, the claim will be found invalid as indefinite. *See Atmel v. Info. Storage Devices, Inc.*, 198 F.3d 1374, 1378-79, 1382 (Fed. Cir. 1999) (“There must be structure in the specification” and the requirements of § 112 ¶ 6 will not be met when there is “a total omission of structure”). “While the specification must contain structure linked to claimed means, this is not a high bar: ‘[a]ll one needs to do in order to obtain the benefit of [§ 112 ¶ 6] is to recite some structure corresponding to the means in the specification, as the statute states, so that one can readily ascertain what the claim means and comply with the particularity requirement of [§ 112] P 2.’” *Biomedino, LLC v. Waters Technologies Corp.*, 490 F.3d 946, 950 (Fed. Cir. 2007) (quoting *Atmel* 198 F.3d at 1382).

For computer-implemented functions, the specification must disclose some kind of *logic or algorithm* to accomplish the claimed function. *Aristocrat Technologies Austrl. v. Int’l Gaming Tech.*, 521 F.3d at 1333; otherwise, the result would be “pure functional claiming.” *Id.*

**C. Where the Court Finds All Claims of the Patent Indefinite during the Claim Construction Process, it is Appropriate for the Court to Enter Judgment of Invalidity**

Where all claims of the patent(s) are determined to be indefinite during claim construction, it is appropriate for the Court to enter judgment of invalidity. “Whether the claims meet the statutory requirements of § 112 ¶ 2 is a matter of construction of the claims.” *S3, Inc. v. Nvidia Corp.*, 259 F.3d 1364, 1367 (Fed. Cir. 2001), and is therefore a question of law. *Personalized Media Communications, L.L.C. v. Int’l Trade Comm’n*, 161 F.3d 696 (Fed. Cir. 1998).

35 U.S.C. § 112 ¶ 2, provides:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

The Federal Circuit has held that “[i]n determining whether the claim is sufficiently definite, we must analyze whether ‘one skilled in the art would understand the bounds of the claim when read in light of the specification.’” (citation omitted). Furthermore, “[i]t is not [the Court’s] function to rewrite claims to preserve their validity,” but rather, it is the Court’s function to “determine whether the claims ‘particularly point out and distinctly claim’ what the inventor regards as his invention.” *Allen Eng’g Corp. v. Bartell Indus., Inc.*, 299 F.3d 1336, 1349 (Fed. Cir. 2002).

The definiteness requirement exists to avoid “[a] zone of uncertainty which enterprise and experimentation may enter only at the risk of infringement.” *Exxon Research & Eng’g Co. v. United States*, 265 F.3d 1371, 1375 (Fed. Cir. 2001) (quoting *United Carbon Co. v. Binney & Smith Co.*, 317 U.S. 228, 236 (1942)). This purpose is consistent with the principles set forth in *Markman*, 517 U.S. at 390. This principle is also axiomatic in patent law: as stated by the Supreme Court, “[t]o sustain claims so indefinite as not to give the notice required by the statute would be in direct contravention of the public interest which Congress therein recognized and sought to protect.” *United Carbon Co.*, 317 U.S. at 233.

## V. CLIMATECRAFT'S PROFFERED CLAIM CONSTRUCTIONS

The law requires claims to be construed as they would be understood by a person having ordinary skill in the art at the time the alleged invention was made. ClimateCraft's contention regarding the person of ordinary skill in the art is uncontested, and is a person who either (a) holds a bachelor's degree in Mechanical Engineering with at least two years experience in the field or (b) has training as a designer and at least several years of experience in the field. Exh. 7, Rice Declaration, ¶ 9. Construction of the terms in the independent claims of the patents in suit is addressed from this perspective. The following, preliminary remarks provide the backdrop for construing the terms used repeatedly in the claims of the patents in suit.

The claim terms pertaining to the "control" feature are the heart of the case. These are not susceptible to construction and are therefore indefinite for two different reasons, each of which suffices to support judgment of invalidity of every claim in the patents in suit. This is best illustrated by attempting to construe the terms, which will lead to an understanding of the uncertainty one of ordinary skill in the art faces as a result.

To begin the analysis of the claim language that follows, it is appropriate to examine what "control" is. ClimateCraft's proffered claim constructions (Exh. 5) are centered on this; Huntair seeks to avoid the issue (*cf.* Exh. 14, 16). This is because the patent specification teaches nothing more about "control" than to offer its conclusory, repeated statements that a controller can "operate" the fan units to run at substantially peak efficiency by turning selective ones on and off.

Because nothing in the patent defines "control" or even gives a working example of it, resort to extrinsic evidence is appropriate. In Dr. Rice's report, he analyzes what "control" meant to one of ordinary skill in the art at the time the alleged invention was made, and opined:

In a most generic sense, one of ordinary skill in the art would have understood "control" to require "receiving input information, determining output information necessary to achieve a desired objective, and producing the required output information to achieve the desired objective." In other words, "control" requires knowing what to look at and what to change to reach a desired result – it is a decision-making process requiring some kind of logic.

Exh. 7, ¶ 50. In contrast, Dr. Karvelis says nothing about the meaning of "control." Exh. 20.

Dr. Rice's definition is logical and consistent with common sense. It is not enough merely to operate something and accidentally achieve the desired result; to "control" for something means to measure changes in demand, to determine what change in output is

necessary to achieve the desired objective by applying some calculation, logic, decision-making, etc., and then to make the change in the output.

The claims of the patents in suit identify two types of controllers for controlling the fan units to run at substantially peak efficiency. The first of these is an “array controller,” recited by the independent claims of the ‘775 patent and two dependent claims of the ‘046 patent. The second is a “control system,” recited by the independent claims of the ‘046 patent.

Huntair concedes that the array controller must be automatic, but suggests that the control system can be manual. Exh. 14, 16. Nothing in the specification suggests such a marked difference between the two. Indeed, the specification and prosecution history support common sense: the control being claimed is an automatic control. Exh. 7, ¶ 50-54.

The following discussion is equally applicable to the five terms reciting “control” for “substantially peak efficiency” that appear in the respective, independent claims of the patents in suit. These claim terms recite either an “array controller” or a “control system” for “controlling” or “operating” the fans to run at “substantially peak efficiency.”

As Dr. Rice explains in providing the Court with the technical background to this field, Exh. 7, ¶ 10-36, fans operate to push air through a restricted air space according to the laws of physics. Complex mathematical formulae describe fan performance. Exh. 7, ¶ 19, 23-27. Understanding the relationship between fan speed, the pressure against which they are working, the air flow rate they are working to achieve, and the fan efficiency in each of a group of fans is quite complex. Exh. 7, ¶ 58-60 *et seq.*

One cannot simply turn fan units on and off and maintain control over all the variables at once – they are interrelated. Exh. 7. One cannot know what will happen to the efficiency of the fan units by randomly flipping them on and off. Exh. 7, ¶ 60 *et seq.* The problem is even more complex when one begins to vary the speed of one or more fan units relative to the speed of the rest of them. Exh. 7, ¶ 72 *et seq.*

To obtain its patents, Huntair portrayed this “peak efficiency” control as new to the art – novel, non-obvious and advantageous. Consequently, Huntair cannot now be heard to say that one of ordinary skill in the art would know with sufficient clarity the structure and algorithm behind these various items that allegedly “control” for “substantially peak efficiency.” This is, indeed, the asserted point of novelty of the claims.

As Dr. Rice explains, one of ordinary skill in the art therefore would not know the structure that is recited in these claim elements. Exh. 7, ¶ 58-60 *et seq.* Consequently, under the law, these are to be interpreted as means-plus-function claim elements under 35 U.S.C. § 112 ¶ 6. Because there is no disclosed structure in the specification that performs the claimed function, these terms are indefinite under 35 U.S.C. § 112 ¶ 2.

#### A. Claim 1 of the ‘775 Patent

Claim 1 of the ‘775 Patent reads (terms to be construed are highlighted):

1. A ***fan array*** fan section in an air-handling system comprising:
  - (a) at least six fan units;
  - (b) said at least six fan units arranged in a ***fan array***;
  - (c) an air-handling compartment within which said ***fan array*** of fan units is positioned; and
  - (d) ***an array controller for controlling said at least six fan units to run at substantially peak efficiency by strategically turning selective ones of said at least six fan units on and off,***

wherein each fan unit has a ***peak efficiency*** operating range outside of which it operates at a reduced ***efficiency***, and wherein said ***array controller*** is programmed to operate said at least six fan units at ***substantially peak efficiency*** by strategically turning off at least one fan unit operating at reduced ***efficiency*** and running the remaining fan units within said ***peak efficiency*** operating range.

This claim presents the terms “fan array,” “array controller,” “efficiency,” “peak efficiency,” “substantially peak efficiency” and “an array controller for controlling said at least six fan units to run at substantially peak efficiency by strategically turning selective ones of said at least six fan units on and off” for construction.

##### 1. fan array

The term “fan array” should be construed as meaning, “three or more fan units positioned to work together in parallel.”

Plaintiff’s construction is flawed in two respects. First, it broadens the number of fans in a fan array to *two or more*. Second, it attempts to limit the configuration of the array to those specific examples provided in the specification: “multiple fan units arranged in a grid, a spaced pattern, a checkerboard, rows slightly offset, columns slightly offset, or a staggered array configuration.”

The patent specification itself expressly limits the number of fans in an array to “*more than two*,” 11:36-38, so “multiple” is not sufficient as a construction. Additionally, the

specification instructs that “the term array is comprehensive,” 5:15-26, and so should not be limited to the examples provided in the specification. Finally, note that dependent claims 4 and 19 of the ‘775 Patent, and dependent claim 8 of the ‘046 Patent, specify that the fan array configuration be “selected from the group consisting of: (a) a true array configuration; (b) a spaced pattern array configuration; (c) a checker board array configuration; (d) rows slightly offset array configuration; (e) columns slightly offset array configuration; and (f) a staggered array configuration.” Plaintiff’s proposed construction would render these dependent claims superfluous, which violates the doctrine of claim differentiation.

## **2. array controller**

The term “array controller” should be construed to mean “an automated system to control a fan array which receives input information, determines the output information to achieve a desired objective, and produces the required output information to achieve the desired objective.”

Huntair concedes that the “array controller” is automatic, but it proposes an instruction that overlooks the required “control.” Under Huntair’s proposed construction, turning the fans on and off would be enough to meet the claim if it happens that the fan units operate at substantially peak efficiency. This ignores that the fan units need to be *controlled* to run at substantially peak efficiency.

## **3. efficiency**

Efficiency should be construed to mean “static efficiency.”

The patent does not *define* what is meant by “efficiency,” but it does refer to one type of efficiency: “static efficiency.” Exh. 2, 8:11-16. In the second provisional patent application to which the patents in suit claim priority, data is provided regarding the fan’s “static efficiency” and showing data using “static pressure” versus “airflow.” Exh. 23, CL 727. Note that the patent specification expressly incorporates by reference the provisional applications. Exh. 2, 1:22-24.

Despite these two references to “static efficiency,” neither directly defines the claimed “efficiency” as static efficiency. Consequently, the Court may decide to examine the extrinsic evidence offered. This comes in two forms.

The first, Dr. Rice’s report, provides a full explanation of the science behind fan performance (Exh. 7, ¶ 10 through 36) and specifically explaining why “static efficiency” is what one of ordinary skill in the art would understand these patents to be directed to (Exh. 7, ¶ 23 through 34). Dr. Rice explains:



The static pressure rise, rather than a total pressure rise, is typically used as the primary performance measure for the subject fans. Total pressure rise is generally used for fans that are connected directly to a duct on the inlet and/or the outlet of the fan. There is usually a difference in the area of the inlet duct to the outlet duct which results in a difference in the dynamic pressure. This difference affects the fan power consumption and must be accounted for in determining the fan performance.

Exh. 7, ¶ 29. Dr. Rice's technical explanation is consistent with this intrinsic evidence, above.

In contrast, Huntair's Dr. Karvelis spends much of his four-page report criticizing this analysis, ignoring the mention in the specification and the data in the provisional application in the process. Exh. 20. He provides three inconsistent uses of "efficiency," first saying "the mechanical efficiency [is] the more appropriate choice for general fan efficiency" (Exh. 20, ¶ 17, lines 4-5), then saying "peak efficiency" would mean the [sic] "optimizing<sup>7</sup> the ratio of power delivered by the fans to the electrical power consumed by the fans" (Exh. 20, ¶ 19), and then saying the "mechanical power efficiency" relates to overall "power usage and/or air flow" which, of course, complete muddies the waters (Exh. 20, ¶ 22).

Dr. Karvelis's refusal to accept what is mentioned in the patent and shown in the provisional patent application, coupled with his own apparent confusion over what "efficiency" should be defined to mean, simply underscore the indefiniteness inherent in the patent's disclosure and would support a further basis for invalidation of the patent's claims. However, whether one uses "static efficiency" or "mechanical efficiency" in the analysis, it is readily apparent that the patents teach nothing about how to control the fan units to achieve peak efficiency, whatever that may be.

#### **4. peak efficiency**

As explained above, the patent specification only mentions one type of efficiency: static efficiency. Exh. 2, 8:11-16; *see also* Exh. 22, CL 727. It says nothing about the meaning of "peak efficiency," but this term should be clear from an ordinary meaning of the word "peak" – maximum.

When plotted on a graph, the peak of an efficiency curve shows just like the peak of a hill: it is the point on the curve farthest from the X-axis (horizontal axis). Again, Dr. Rice's explanation of the science behind fan behavior illustrates this. *See, e.g.*, Exh. 7, Fig. 7 (p. 13).

Dr. Karvelis, unwilling to concede "peak" means "maximum," instead implies "optimum." While at first the difference in wording seems inconsequential, it is not: Huntair seeks to use imprecise language in claim construction because specificity is fatal to its infringement position.

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<sup>7</sup> Note he says "optimizing," not "maximizing."



### 5. substantially peak efficiency

As set forth in the summary of the argument, the term “substantially peak efficiency” is indefinite. ClimateCraft made it clear back in February that is so contended; despite this, Huntair offers no extrinsic evidence to try to save this defect and instead asks the Court to ignore it, by defining “substantially peak efficiency” as “nearly peak efficiency.” Exh. 16.

The term “substantially” is commonly used in patents and can be susceptible to different interpretations. *Deering Precision Instruments v. Vector Distrib. Sys.*, 347 F.3d 1314, 1322-23 (Fed. Cir. 2003). The Federal Circuit has construed it many times. *Id.* at 1322-23. “Since the terms ‘substantially’ is subject to multiple interpretations, we turn to the intrinsic evidence to determine which interpretation should be adopted.” *Id.* at 1323 (citations omitted). Extrinsic evidence can be consulted, as well. *Verve, LLC v. Crane Cams, Inc.*, 311 F.3d 1116, 1120 (Fed. Cir. 2002).

Here, however, no intrinsic or extrinsic evidence exists. The term “substantially peak efficiency” was only used in the claims. Dr. Karvelis opines, without support, that “nearly” is what “substantially” means – but this offers no more clarity. *Cf.* Exh. 20, ¶ 12, 13.

To one of ordinary skill in the art, the claimed “substantially peak efficiency” is indefinite. Exh. 7, ¶ 49. The term “substantially peak efficiency” is not mentioned in the patent specification; it appears only in the claims. Exh. 2. Nothing in the patent or the priority documents suggests a range of “peak efficiency” that would define the bounds of the claim.

Dr. Rice concedes that one of ordinary skill in the art might understand “substantially peak efficiency” to mean “nearly peak efficiency.” Exh. 7, ¶ 49. But he explains that they would not know how “near” is “near enough.” *Id.* This uncertainty is forbidden by statute; there cannot be “[a] zone of uncertainty which enterprise and experimentation may enter only at the risk of infringement,” *Exxon Research & Eng’g Co.*, 265 F.3d at 1375, lest the public be deprived of the public notice the patent statute requires. *United Carbon Co.*, 317 U.S. at 233.

The term “substantially peak efficiency” is required by every claim of the patents in suit, and is insolubly ambiguous. For this reason alone, the Court should enter judgment of invalidity and dismiss Huntair’s infringement case with prejudice.

**6. an array controller for controlling said at least six fan units to run at substantially peak efficiency by strategically turning selective ones of said at least six fan units on and off**

This claim term appears as element (d) of claim 1 of the '775 patent. The required "array controller for controlling said at least six [plurality of] fan units to run at substantially peak efficiency by strategically turning selective ones of said at least six [plurality of] fan units on and off" would generally be understood to mean something that would (a) receive input information regarding the system air flow requirements, (b) determine the output information necessary, i.e. which fans to turn on and off, and when, to achieve "substantially" peak efficiency of the fan units, and (c) produce that output information (i.e. send a signal to turn individual fans on and off) so that the fan units run at "substantially" peak efficiency.

**Indefiniteness**

However, one of ordinary skill in the art would not have understood what specific structure and logic (algorithm) would control the fan units to run at substantially peak efficiency by "strategically" turning selective ones of the fan units on and off. This simply was not known in the art. Exh. 7, ¶ 83-87, *cf.* with explanation from ¶ 56-65.

In *Toro Co. v. Deere & Co.*, 355 F.3d 1313, 1325 (Fed. Cir. 2004), the Federal Circuit construed a "control mechanism for controlling the operation" of a valve as a means-plus-function claim limitation. The clause "discloses a function for a "control mechanism" but does not provide sufficient structural description of this mechanism." *Id.* (reversing district court).

Here, the patent specification states that the array controller may be used to respond to variable air volume requirements, but it fails to teach how it is even possible to run the remaining fans at "substantially peak efficiency." One of ordinary skill in the art would not identify the claimed term as reciting specific structure and logic that would provide control of "said at least six fan units to run at substantially peak efficiency by strategically turning selective ones of said at least six fan units on and off."

Indeed, Huntair obtained these patents by making that very argument. The peak efficiency control feature is the point of novelty for this and all the other claims. Huntair cannot now claim that one of ordinary skill in the art would have known what structure performs this function.

Under the law, then, this term must be construed as a means-plus-function claim element. In so doing, the Court must determine what the claimed function is. This is not difficult, as the

patent recites “controlling said at least six [plurality of] fan units to run at substantially peak efficiency by strategically turning selective ones of said at least six [plurality of] fan units on and off.” That’s the function.

Next, the Court turns to the specification to determine what structure performs the claimed function. Here, Huntair falls short. There is no structure that performs the function. All that is disclosed is the “controller 300.” Fundamentally, what has happened is Huntair has said “you can do this” without explaining how.

This is precisely what is forbidden by *Aristocrat Technologies Austrl.*, 521 F.3d at 1333. Computer-implemented means-plus-function claims must disclose some kind of *logic or algorithm* to accomplish the claimed function; otherwise, the result is the forbidden, purely functional claiming. The patent claim (and those that depend from it) is invalid pursuant to 35 U.S.C. § 112 ¶ 2 (for this reason and separately for including the insolubly ambiguous “substantially” limitation).

### **Alternative Construction**

Should the Court not reach the conclusion that the claim term is a means-plus-function limitation, ClimateCraft submits that the claim should be construed as “for use with at least six fan units, an array controller that (a) receives input information regarding the system air flow requirements, (b) determines the output information necessary, i.e. which fans to turn on and off, and when, to achieve substantially peak efficiency of the fan units, and (c) produces that output information (i.e. send a signal to turn individual fans on and off) so that the fan units run at substantially peak efficiency.”

### **B. Claim 16 of the ‘775 Patent**

Claim 16 of the ‘775 Patent reads (terms to be construed are highlighted):

16. A ***fan array*** fan section in an air-handling system comprising:
  - (a) a plurality of independently controllable fan units, each fan unit comprising an inlet cone, a fan, and a motor;
  - (b) said plurality of fan units arranged in a ***fan array***;
  - (c) an air-handling compartment within which said ***fan array*** of fan units is positioned;
  - (d) **an array controller for controlling said plurality of fan units to run at substantially peak efficiency by strategically turning selective ones of said plurality of fan units on and off**; wherein
  - (e) each of said plurality of fan units has a fan wheel diameter, wherein spacing between said plurality of fan units is less than 60% of said fan wheel diameter.

This claim presents the terms “fan array,” “array controller,” “efficiency,” “peak efficiency,” “substantially peak efficiency” and “an array controller for controlling said plurality of fan units to run at substantially peak efficiency by strategically turning selective ones of said plurality of fan units on and off” for construction.

Of these terms, the first five are the same as those discussed in the preceding section addressing Claim 1, and the last differs only slightly from the last discussed in the preceding section. The replacement of “said at least six fan units” by “a plurality of fan units” does not change the analysis. The discussion, therefore, is identical, and ClimateCraft requests the same relief.

### C. Claim 1 of the ‘046 Patent

Claim 1 of the ‘046 Patent reads (terms to be construed are highlighted):

1. A *fan array* fan section in an air-handling system comprising:
  - (a) an air-handling compartment;
  - (b) a plurality of fan units;
  - (c) said plurality of fan units arranged in a *fan array*;
  - (d) said *fan array* positioned within said air-handling compartment;
  - (e) said air-handling compartment associated with a structure such that said air-handling system conditions the air of said structure; and
  - (f) **a control system for operating said plurality of fan units at substantially peak efficiency by strategically turning on and off selective ones of said plurality of fan units.**

This claim presents the terms “fan array,” “control system,” “efficiency,” “peak efficiency,” “substantially peak efficiency” and “a control system for operating said plurality of fan units at substantially peak efficiency by strategically turning on and off selective ones of said plurality of fan units” for construction. Of these terms, all but the last two were addressed above.

#### 1. control system

The term “control system” should be construed to mean “an automated system which receives input information, determines the output information necessary to achieve a desired objective, and produces the required output information to achieve the desired objective.”

Huntair asserts that the “control system” can be manual, but no evidence supports such a construction. Its expert, Dr. Karvelis argues that the “control system” can be manual, but he cites to a “non-peak efficiency” feature of the first embodiment, stating that “a person desiring to control the array may select desired air volume, a level of air flow, a pattern of air flow, and/or how many fans to operate.” Exh. 20, ¶ 16, citing Exh. 2, 7:4-7. This proves nothing, for two

reasons. First, the fact the person can *select* what to control for hardly makes the control manual. Second, of all the features being controlled for in the passage Dr. Karvelis cites, none is to “peak efficiency.”

Huntair concedes that the preceding “array controller” is automatic, but suggests one of ordinary skill in the art would view the “control system” as encompassing manual operation. This defies common sense, as one of ordinary skill would have viewed both types of control as automatic. Exh. 7, ¶ 50-53; cf. Exh. 12 (1996 IEEE dictionary definition of “control system.”)

Huntair could not argue its array controller was not automatic, in view of its remarks and amendments in the prosecution history to avoid the Simon reference (discussed above). But nothing in the specification suggests the “control system” is any different from the “array controller” in regard to being automatic.

A common-sense, plain meaning read of the specification suggests that the claimed control is automatic. While the “control system” is more broad than the “array controller,” it is not so broad as to capture the Simon prior art teachings.

**2. a control system for operating said plurality of fan units at substantially peak efficiency by strategically turning on and off selective ones of said plurality of fan units**

This claim term appears as element (f) of claim 1 of the ‘046 patent. The required “control system for operating said plurality of fan units at substantially peak efficiency by strategically turning on and off selective ones of said plurality of fan units” would generally be understood to mean something that would (a) receive input information regarding the system air flow requirements, (b) determine the output information necessary, i.e. which fans to turn on and off, and when, to achieve “substantially” peak efficiency of the fan units, and (c) produce that output information (i.e. send a signal to turn individual fans on and off) so that the fan units run at “substantially” peak efficiency. Exh. 7, ¶ 56.

**Indefiniteness**

One of ordinary skill in the art would not have understood what specific structure and logic (algorithm) would control the fan units to run at substantially peak efficiency by “strategically” turning selective ones of the fan units on and off. This simply was not known in the art. The patent specification states that the control system may respond to variable air

volume requirements, but it fails to teach how it is even possible to run the remaining fans at “substantially peak efficiency.” Exh. 7, ¶ 56-65.

The this regard, the analysis for this claim element is the same as that presented above for the previous two. Changing the term from an “array controller for controlling” to a “control system for operating” the fan units to run or operate at “substantially peak efficiency” by strategically turning selective ones” on and off does not clarify a thing. One of ordinary skill in the art would not identify the claimed term as reciting specific structure and logic that would provide the claimed feature.

Again, Huntair obtained these patents by making this very argument and establishing the claimed feature as the point of novelty for the claim. Huntair cannot now claim that one of ordinary skill in the art would have known what structure performs this function. (To the extent Dr. Karvelis attempts to do so, his report is completely conclusory and should be disregarded).

Under the law, then, this term must be construed as a means-plus-function claim element. In so doing, the Court must determine what the claimed function is. Again, this is not difficult, as the patent recites “operating said plurality of fan units at substantially peak efficiency by strategically turning on and off selective ones of said plurality of fan units.” That’s the function.

Next, the Court turns to the specification to determine what structure performs the claimed function. Again, the patents fall short; there is no structure that performs the function. All that is disclosed is the “controller 300.” Fundamentally, what has happened is Huntair has said “you can do this” without explaining how.

Under *Aristocrat Technologies Austrl.*, 521 F.3d at 1333, the patent claim (and those that depend from it) is invalid pursuant to 35 U.S.C. § 112 ¶ 2. They are also invalid for including the “substantially peak efficiency” phrase.

#### **Alternative Construction**

Should the Court not reach the conclusion that this is a means-plus-function limitation, ClimateCraft submits that the claim should be construed as “a control system that (a) receives input information regarding the system air flow requirements, (b) determines the output information necessary, i.e. which fans to turn on and off, and when, to achieve substantially peak efficiency of the fan units, and (c) produces that output information (i.e. sends a signal to turn individual fans on and off) so that the fan units run at substantially peak efficiency.”

**D. Claim 15 of the '046 Patent**

Claim 15 of the '046 Patent reads (terms to be construed are highlighted):

15. A *fan array* fan section in an air-handling system comprising:
- (a) an air-handling compartment;
  - (b) a plurality of fan units;
  - (c) said plurality of fan units arranged in a *fan array*;
  - (d) said *fan array* positioned within said air-handling compartment;
  - (e) said air-handling compartment association with a structure such that the said air-handling system conditions the air of said structure; and
  - (f) **a control system for controlling said plurality of fan units, said control system allowing control of the speed of the fan units in said plurality of fan units such that they run at substantially peak efficiency.**

This claim presents the terms “fan array,” “control system,” “efficiency,” “peak efficiency,” “substantially peak efficiency” and “a control system for controlling said plurality of fan units, said control system allowing control of the speed of the fan units in said plurality of fan units such that they run at substantially peak efficiency” for construction. Of these terms, all but the last one was addressed above.

**1. a control system for controlling said plurality of fan units, said control system allowing control of the speed of the fan units in said plurality of fan units such that they run at substantially peak efficiency**

This claim term appears as element (f) of claim 15 of the '046 patent. The required “control system for controlling said plurality of fan units, said control system allowing control of the speed of the fan units in said plurality of fan units such that they run at substantially peak efficiency” would generally be understood to mean something that could (a) receive input information regarding the system air flow requirements, (b) determine the output information necessary, i.e. which fans to speed or slow relative to the others, and when, to achieve “substantially” peak efficiency of the fan units, and (c) produce that output information (i.e. send a signal to speed or slow individual fans) so that the fan units run at “substantially” peak efficiency.

In construing this term, the Court should find that the claim and its prosecution history require that the “control of the speed of the fan units” *separately* control the speed of *each* fan unit in the plurality. This is because, as described above, Huntair amended then-pending claim 15 to require separate speed control of the individual fan units in the array. The “array controller” element in original claim 15 was amended as follows:



- (f) ~~an array controller~~ a control system for controlling said plurality of fan units, said ~~array controller is programmed to selectively control~~ control system allowing control of the speed of ~~each of the fan units in~~ said plurality of fan units ~~to~~ such that they run at substantially peak efficiency.

Exh. 35, CL 522-523. Huntair explained how the newly-added language distinguished Claim 15 over Ray:

Claim 15 has been amended in substantially the same manner as claim 1 except that *the control system controls the speed of individual fans*, rather than turning individual fans off, to cause the plurality of fans to run at substantially peak efficiency.

*Id.* Huntair also distinguished newly amended Claim 15 over Niedhardt, explaining:

The Applicants have carefully reviewed Fig. 4 and the accompanying description in Niedhardt et al. (col. 3, line 8 to col. 5, line 31) and can find absolutely no teaching or suggestion of an “array controller being programmed *to selectively control the speed of each* of said plurality of fan units to run at substantially peak efficiency.”

*Id.*, at CL 523. Huntair expressly limited its claim to requiring speed control of individual fans.

### **Indefiniteness**

When it comes to controlling an array of fans, whereas turning some on and off to increase overall efficiency is extraordinarily difficult, as Dr. Rice explained, varying *the speed* of one fan relative to the other to increase efficiency would be extremely troublesome. Exh. 7, ¶ 72. One of ordinary skill in the art would not have understood a specific structure and logic that could provide a control system that would allow “control of the speed of the fan units in said plurality of fan units such that they run at substantially peak efficiency;” he or she would be even less likely to know how to accomplish this. Likewise, the patents do not teach one of ordinary skill in the art a specific structure and logic would be that would allow “control of the speed of the fan units in said plurality of fan units such that they run at substantially peak efficiency.” Exh. 7, PP 66-75.

Accordingly, the claim limitation should be construed as a means-plus-function limitation. The analysis for this claim element is similar to those discussed above. One of ordinary skill in the art would not identify the claimed term as reciting specific structure and logic that would provide the claimed feature. Again, Huntair obtained these patents by making the argument that



the claimed feature is the point of novelty for the claim. Huntair cannot now claim that one of ordinary skill in the art would have known what structure performs this function.

Under the law, then, this term must be construed as a means-plus-function claim element. In so doing, the Court must determine what the claimed function is. Again, this is not difficult, as the patent recites “controlling said plurality of fan units, said control system allowing control of the speed of the fan units in said plurality of fan units such that they run at substantially peak efficiency.” That’s the function.

Next, the Court turns to the specification to determine what structure performs the claimed function. Again, the patents fall short; there is no structure that performs the function. All that is disclosed is the “controller 300.” Fundamentally, what has happened is Huntair has said “you can do this” without explaining how. Under *Aristocrat Technologies Austrl.*, 521 F.3d at 1333, the patent claim (and those that depend from it) is invalid pursuant to 35 U.S.C. § 112 ¶ 2. The term is also invalid under the same statute for inclusion of “substantially peak efficiency.”

### **Alternative Construction**

Should the Court not reach the conclusion that this claim limitation is a mean-plus-function limitation, ClimateCraft submits that the claim should be construed as “a control system that makes possible control of the fan units by (a) receiving input information regarding the system air flow requirements, (b) determining the output information necessary, i.e. which fans to speed or slow relative to the others, and when, to achieve substantially peak efficiency of the fan units, and (c) producing that output information (i.e. sends a signal to speed or slow individual fans) so that the fan units run at substantially peak efficiency.”

### **E. Claim 19 of the ‘046 Patent**

Claim 19 of the ‘046 Patent reads (terms to be construed are highlighted):

19. A *fan array* fan section in an air-handling system comprising:
  - (a) an air-handling compartment;
  - (b) a plurality of independently controllable fan units;
  - (c) said plurality of fan units arranged in a *fan array*;
  - (d) said *fan array* positioned within said air-handling compartment;
  - (e) said air-handling compartment associated with a structure such that the said air-handling system conditions the air of said structure; and
  - (f) a *control system for controlling the speed of the fan units in said plurality of fan units such that they run at substantially peak efficiency.*

This claim presents the terms “fan array,” “control system,” “efficiency,” “peak efficiency,” “substantially peak efficiency” and “a control system for controlling the speed of the fan units in said plurality of fan units such that they run at substantially peak efficiency” for construction. Of these terms, all but the last one was addressed above.

**1. a control system for controlling the speed of the fan units in said plurality of fan units such that they run at substantially peak efficiency**

This claim term appears as element (f) of claim 19 of the ‘046 patent. The required “control system for controlling the speed of the fan units in said plurality of fan units such that they run at substantially peak efficiency” would generally be understood to mean something that would (a) receive input information regarding the system air flow requirements, (b) determine the output information necessary, i.e. which fans to speed or slow relative to the others, and when, to achieve “substantially” peak efficiency of the fan units, and (c) produce that output information (i.e. send a signal to speed or slow individual fans) so that the fan units run at “substantially” peak efficiency.

In construing this term, the Court should find that the claim requires that the “control of the speed of the fan units” *separately* control the speed of *each* fan unit in the plurality. This is understood from the similar phrasing of Claim 15 and also from Claim 19’s separate requirement for “a plurality of independently controllable fan units” (at element (b)).

**Indefiniteness**

When it comes to controlling an array of fans, whereas turning some on and off to increase overall efficiency is extraordinarily difficult, as Dr. Rice explained, varying *the speed* of one fan relative to the other to increase efficiency would be extremely troublesome. Exh. 7, ¶81. As with the claim limitation discussed above, one of ordinary skill in the art would not have understood a specific structure and logic that could provide the claimed control system would not have known how to accomplish it. The patents teach nothing about it. Exh. 7, ¶76-82.

Under the law, this term must be construed as a means-plus-function claim element. In so doing, the Court must determine what the claimed function is. Again, this is not difficult, as the patent recites “controlling the speed of the fan units in said plurality of fan units such that they run at substantially peak efficiency.” That’s the function.

The Court turns to the specification to determine what structure performs the claimed function. But the patents fall short; there is no structure that performs the function. Under

*Aristocrat Technologies Austrl.*, 521 F.3d at 1333, the patent claim (and those that depend from it) is invalid pursuant to 35 U.S.C. § 112 ¶ 2. The term is also invalid under the same statute for inclusion of “substantially peak efficiency.”

### **Alternative Construction**

Should the Court not reach the conclusion that this limitation is a means-plus-function limitation, ClimateCraft submits that the claim should be construed as “a control system that (a) receives input information regarding the system air flow requirements, (b) determines the output information necessary, i.e. which fans to speed or slow relative to the others, and when, to achieve substantially peak efficiency of the fan units, and (c) produces that output information (i.e. sends a signal to speed or slow individual fans) so that the fan units run at substantially peak efficiency.”

### **VI. CONCLUSION**

This Court should enter judgment of invalidity and award ClimateCraft its attorney fees. The claims of the patents in suit cannot be construed for two, separate reasons: first, “substantially peak efficiency” is recited in each claim, and second, each claim contains a means-plus-function limitation, central to the claimed invention, for which no corresponding structure is identified in the specification.

Alternatively, should the Court decline to enter judgment at this time, it should adopt ClimateCraft’s proffered constructions for the reasons set forth herein.

Respectfully submitted,

Dated: July 3, 2008

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**CERTIFICATE OF SERVICE**

The undersigned hereby certifies that a true and correct copy of the foregoing  
**CLIMATECRAFT'S OPENING BRIEF ON CLAIM CONSTRUCTION** was served by ECF upon:

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